

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A system for reliably broadcasting a data packet under an ad-hoc network environment, the system comprising:

a comparing unit which compares a first relay node sequence number with a second relay node sequence number,

wherein the first relay node sequence number ~~being is~~ contained in a management packet, the management packet is transmitted from a predetermined neighboring node to at least one node which receives the first relay node sequence number ~~received by at least one node,~~

wherein the at least one node ~~transmitting~~ transmits the data packet to the predetermined neighboring node, and

wherein the second relay node sequence number ~~being is~~ stored in a neighbor table of the at least one node;

a memory unit which stores information of the data packet before the data packet is transmitted to the predetermined neighboring node, wherein the information of the data packet comprises the second relay node sequence number; and

a control unit which determines whether or not the data packet is retransmitted to the predetermined neighboring node by the at least one node according to a result of the comparison,

wherein the comparing is performed in the at least one node transmitting the data packet.

2. (original): The system according to claim 1, wherein the control unit transmits the data packet, wherein after adding “1” to the second relay node sequence number, the resulting sequence number is included in the data packet.

3. (previously presented): The system according to claim 1, wherein the memory unit comprises the neighbor table,

wherein the neighbor table is updated on the basis of information of the management packet received by the at least one node.

4. (original): The system according to claim 1, wherein the data packet includes at least one of Internet protocol addresses of neighboring nodes, relay nodes, link status, and relay node sequence numbers.

5. (original): The system according to claim 3, wherein the neighbor table is updated on the basis of the information of the management packet each of a predetermined number of times.

6. (currently amended): A system for reliably broadcasting a data packet under an ad-hoc network environment, the system comprising:

a determining unit which determines whether or not at least one node that receives the data packet is a relay node which transmits the received data packet to other neighboring nodes;

a comparing unit which compares a first relay node sequence number with a second relay node sequence number,

wherein the first relay node sequence number ~~being is~~ contained in a management packet,  
the management packet is transmitted from a predetermined neighboring node to at least one  
node which receives the first relay node sequence number~~which is received by at least one node,~~

wherein the at least one node~~that~~ transmits ~~a~~ the data packet to the predetermined  
neighboring node, and

wherein the second relay node sequence number ~~being is~~ stored in a neighbor table of the  
at least one node that transmits the data packet;

a memory unit which stores information of the data packet before the data packet is  
transmitted to the predetermined neighboring node, wherein the information of the data packet  
comprises the second relay node sequence number; and

a control unit which determines whether or not the data packet is retransmitted to the  
predetermined neighboring node by the at least one node that transmits the data packet according  
to a result of the comparison,

wherein the comparing is performed in the at least one node transmitting the data packet.

7. (original): The system according to claim 6, wherein the control unit transmits  
the data packet, wherein after adding “1” to the second relay node sequence number, the  
resulting sequence number is included in the data packet.

8. (previously presented): The system according to claim 6, wherein the memory  
unit comprises the neighbor table,

wherein the neighbor table is updated on the basis of information of the management  
packet received by the at least one node that transmits the data packet.

9. (original): The system according to claim 6, wherein the data packet includes at least one of Internet protocol addresses of neighboring nodes, relay nodes, link status, and relay node sequence numbers.

10. (original): The system according to claim 8, wherein the neighbor table is updated on the basis of the information of the management packet each of a predetermined number of times.

11. (currently amended): A method for reliably broadcasting a data packet under an ad-hoc network environment, the method comprising:

broadcasting the data packet to neighboring nodes;

comparing a first relay node sequence number with a second relay node sequence

number,

wherein the first relay node sequence number ~~being is~~ contained in a management packet received from the neighboring nodes after broadcasting the data packet to neighboring nodes,

wherein the second relay node sequence number ~~being is~~ stored in a neighbor table of a broadcasting node which broadcast ~~broadcasting~~ the data packet to the neighboring nodes;

storing information of the data packet before the data packet is transmitted to the neighboring nodes, wherein the information of the data packet comprises the second relay node sequence number; and

determining whether or not the data packet is retransmitted to the neighboring nodes, by the broadcasting node, according to a result of the comparison,

wherein the comparing is performed in the at least one node transmitting the data packet.

12. (previously presented): The method according to claim 11, wherein the step of broadcasting comprises:

adding "1" to the second relay node sequence number which is stored in the neighbor table of each of the neighboring nodes; and

adding the resulting relay node sequence number and predetermined information to the data packet .

13. (previously presented): The method according to claim 11, wherein the step of comparing comprises:

receiving the management packet from the neighboring nodes; and

comparing the first relay node sequence number contained in the received management packet with the second relay node sequence number stored in the neighbor table of the node broadcasting the data packet.

14. (original): The method according to claim 11, wherein the step of determining comprises:

as a result of the comparison, when the first and second relay node sequence numbers are equal, terminating transmission of the data packet; and

when the first and second relay node sequence numbers are not equal to each other, retransmitting the data packet to the neighboring nodes.

15. (original): The method according to claim 14, wherein a number of times for retransmitting the data packet is set to a predetermined number of times, and when the number of

times the data packet has been retransmitted exceeds the set number of times, retransmitting the data packet is stopped.

16. (original): The method according to claim 15, wherein, when the first and second relay node sequence numbers are not equal, the neighbor table is updated with a relatively large relay node sequence number.

17. (original): The method according to claim 11, wherein the data packet includes at least one of Internet protocol addresses of neighboring nodes, relay nodes, link status, and relay node sequence numbers.

18. (original): The method according to claim 15, wherein the neighbor table is updated on the basis of information of the management packet each of the predetermined number of times.

19. (currently amended): A method for reliably broadcasting a data packet under an ad-hoc network environment, the method comprising:

checking whether at least one node operable to receive the data packet is a relay node;

as a result of checking, when the node is a relay node, broadcasting the data packet to neighboring nodes by the at least one node;

comparing a first relay node sequence number with a second relay node sequence

number,

wherein the first relay node sequence number ~~being is~~ contained in a management packet which each of the neighboring nodes transmits after broadcasting the data packet to neighboring nodes,

|        wherein the second relay node sequence number ~~being~~is stored in a neighbor table of the  
at least one node,

storing information of the data packet before the data packet is transmitted to the  
neighboring nodes, wherein the information of the data packet comprises the second relay node  
sequence number; and

determining whether or not the data packet is retransmitted to the neighboring nodes, by  
the at least one node, according to a result of the comparison,

wherein the comparing is performed in the at least one node broadcasting the data packet.

20.     (previously presented): The method according to claim 19, wherein the step of  
broadcasting comprises:

adding “1” to the second relay node sequence number which is stored in the neighbor  
table of each of the neighboring nodes; and

adding the resulting relay node sequence number and predetermined information to the  
data packet.

21.     (previously presented): The method according to claim 19, wherein the step of  
comparing comprises:

receiving the management packet from the neighboring nodes; and

comparing the first relay node sequence number contained in the management packet  
which each of the neighboring nodes transmits, with the second relay node sequence number  
stored in the neighbor table of the at least one node.

22. (original): The method according to claim 19, wherein the step of determining comprises:

as a result of the comparison, when the first and second relay node sequence numbers are equal, terminating transmission of the data packet; and

when the first and second relay node sequence numbers are not equal, retransmitting the data packet to the neighboring nodes.

23. (original): The method according to claim 22, wherein retransmission of the data packet is set to occur a predetermined number of times, and when the number of times the data packet is retransmitted exceeds the set number of times, retransmitting the data packet is stopped.

24. (original): The method according to claim 23, wherein, when the first and second relay node sequence numbers are not equal, the neighbor table is updated with a relatively large relay node sequence number.

25. (original): The method according to claim 19, wherein the data packet includes at least one of Internet protocol addresses of the neighboring nodes, relay nodes, link status, and relay node sequence numbers.

26. (original): The method according to claim 23, wherein the neighbor table is updated on the basis of information of the management packet each of the predetermined number of times.

27. (original): The method according to claim 19, further comprising the step of; as a result of checking, when the node is not the relay node, storing information of the received data packet in the neighbor table.



28. (previously presented): The system according to claim 1, wherein the management packet is transmitted by a node which receives the data packet transmitted by the at least one node.